

Increased EGFR levels may be an early marker of breast cancer

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Levels of epidermal growth factor receptor (EGFR) may be elevated in the blood of women within 17 months prior to their breast cancer diagnosis, according to findings presented at the American Association for Cancer Research 101st Annual Meeting 2010, held here April 17-21.

The goal of the study led by Christopher Li, M.D., Ph.D., an associate member of the Epidemiology Program at the Fred Hutchinson Cancer Research Center, Seattle, was to discover and validate blood markers that could potentially be used for the early detection of breast cancer.

The study was conducted on 420 estrogen receptor-positive breast cancer patients whose blood was drawn within 17 months prior to their cancer diagnosis. The researchers validated promising markers in a similar, but completely independent set of 198 cases and controls from the Women's Health Initiative database.

One of the promising markers that was discovered and could be validated was EGFR.

EGFR levels were significantly elevated among cases compared to controls. Overall, those with the highest levels had a 2.9-fold increased risk of developing breast cancer compared to those with the lowest level.

When EGFR levels were evaluated among current users of [estrogen plus progestin](#) hormone therapy, a much larger ninefold increased risk of developing breast cancer was observed. As a single marker among

current estrogen plus progestin users, EGFR had a specificity, the rate of true negative tests, of 90 percent and a sensitivity, the rate of true positive tests, of 31 percent as a breast cancer marker.

"While our results require confirmation and EGFR's performance is insufficient for it to be used as a single marker, this study is unique in that no prior studies have validated a single breast cancer early detection biomarker specimen to the degree we have here," said Li. "Our results suggest that there may indeed be detectable changes of proteins in blood within two years of making a clinical breast cancer diagnosis. Identification of these proteins could have a major impact on our ability to detect breast cancer early, when it is most treatable."

EGFR is part of the HER2 family, which has been shown to be quite important in [breast cancer](#). Specifically, increased EGFR activity can increase the uncontrolled growth of cancer cells and EGFR is elevated in 20 percent to 81 percent of all human breast cancers. Several therapies targeting members of the HER2 family, including EGFR, have already been approved for cancer treatment.

Provided by American Association for Cancer Research

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